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Figure 1: Nucleic Acid coding sequence human histamine H4

ATGCCAGATACTAATAGCACAATCAATTTATCACTAAGCACTCGTGTTACTTTAGCATTT
TTTATGTCCTTAGTAGCTTTTGCTATAATGCTAGGAAATGCTTTGGTCATTTTAGCTTTTG
TGGTGGACAAAAACCTTAGACATCGAAGTAGTTATTTTTTCTTAAGTGGCCATCTCTG
ACTTCTTTGTGGGTGTGATCTCCATTCTTTGTACATCCCTCACACGCTGTTTGAATGGG
ATTTTGGAAAGGAAATCTGTGTATTTGGCTCACTACTGACTATCTGTTATGTACAGCAT
CTGTATATAACATTGTCCTCATCAGCTATGATCGATACCTGTCAGTCTCAAATGCTGTGT
CTTATAGAACTCAACATACTGGGGTCTTGAAGATTGTTACTCTGATGGTGGCCGTTTGG
GTGCTGGCCTTCTTAGTGAATGGGCCAATGATTCTAGTTTCAGAGTCTTGAAGGATGA
AGGTAGTGAATGTGAACCTGGATTTTTTTCGGAATGGTACATCCTTGCCATCACATCATT
CTTGGAATTTCGTGATCCCAGTCATCTTAGTCGCTTATTTCAACATGAATATTTATTGGAG
CCTGTGGAAGCGTGATCTCAGTAGGTGCCAAAGCCATCCTGGACTGACTGCTGTCT
CTTCCAACATCTGTGGACACTCATTAGAGGTAGACTATCTTCAAGGAGATCTCTTTCTG
CATCGACAGAAGTTCCTGCATCCTTTTCATTAGAGAGACAGAGGAGAAAGAGTAGTCTC
ATGTTTTCTCAAGAACCAAGATGAATAGCAATACAATTGCTTCCAAAATGGGTTCCTT
CTCCCAATCAGATTCTGTAGCTCTTACCAAAGGGAACATGTTGAACTGCTTAGAGCCA
GGAGATTAGCCAAGTCACTGGCCATTCTCTTAGGGGTTTTTGCTGTTTGTGGGCTCCAT
ATTCTCTGTTCACAATTGTCCTTTCATTTATTCCTCAGCAACAGGTCCTAAATCAGTTTG
GTATAGAATTGCATTTTGGCTTCAGTGGTTCAATTCCTTTGTCAATCCTCTTTTGTATCCA
TTGTGTCACAAGCGCTTTCAAAGGCTTTCTTGAAAAATTTTGTATAAAAAAGCAACC
TCTACCATCACAACACAGTCGGTCAGTATCTTCTTAA

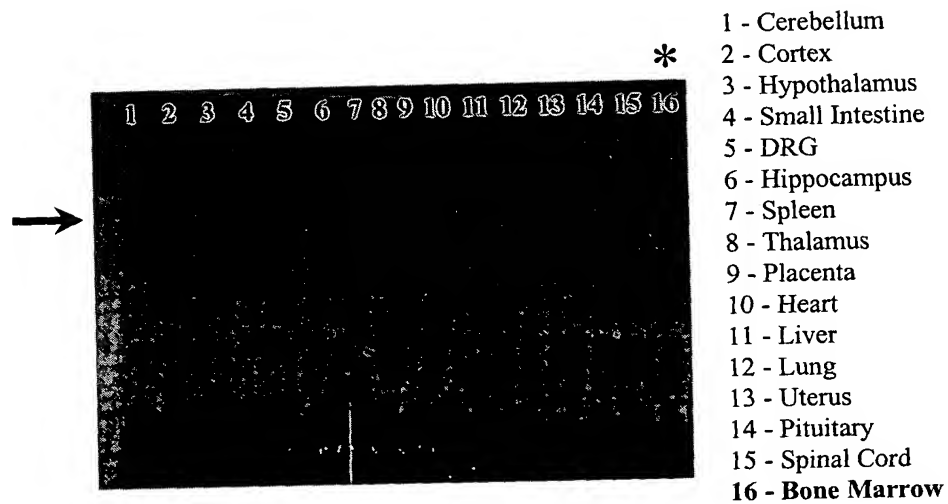
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Figure 2: Amino acid sequence human histamine H4 receptor

Met Pro Asp Thr Asn Ser Thr Ile Asn Leu Ser Leu Ser Thr Arg Val Thr Leu
Ala Phe Phe Met Ser Leu Val Ala Phe Ala Ile Met Leu Gly Asn Ala Leu Val
Ile Leu Ala Phe Val Val Asp Lys Asn Leu Arg His Arg Ser Ser Tyr Phe Phe
Leu Asn Leu Ala Ile Ser Asp Phe Phe Val Gly Val Ile Ser Ile Pro Leu Tyr
Ile Pro His Thr Leu Phe Glu Trp Asp Phe Gly Lys Glu Ile Cys Val Phe Trp
Leu Thr Thr Asp Tyr Leu Leu Cys Thr Ala Ser Val Tyr Asn Ile Val Leu Ile
Ser Tyr Asp Arg Tyr Leu Ser Val Ser Asn Ala Val Ser Tyr Arg Thr Gln His
Thr Gly Val Leu Lys Ile Val Thr Leu Met Val Ala Val Trp Val Leu Ala Phe
Leu Val Asn Gly Pro Met Ile Leu Val Ser Glu Ser Trp Lys Asp Glu Gly Ser
Glu Cys Glu Pro Gly Phe Phe Ser Glu Trp Tyr Ile Leu Ala Ile Thr Ser Phe
Leu Glu Phe Val Ile Pro Val Ile Leu Val Ala Tyr Phe Asn Met Asn Ile Tyr
Trp Ser Leu Trp Lys Arg Asp His Leu Ser Arg Cys Gln Ser His Pro Gly Leu
Thr Ala Val Ser Ser Asn Ile Cys Gly His Ser Phe Arg Gly Arg Leu Ser Ser
Arg Arg Ser Leu Ser Ala Ser Thr Glu Val Pro Ala Ser Phe His Ser Glu Arg
Gln Arg Arg Lys Ser Ser Leu Met Phe Ser Ser Arg Thr Lys Met Asn Ser Asn
Thr Ile Ala Ser Lys Met Gly Ser Phe Ser Gln Ser Asp Ser Val Ala Leu His
Gln Arg Glu His Val Glu Leu Leu Arg Ala Arg Arg Leu Ala Lys Ser Leu Ala
Ile Leu Leu Gly Val Phe Ala Val Cys Trp Ala Pro Tyr Ser Leu Phe Thr Ile
Val Leu Ser Phe Tyr Ser Ser Ala Thr Gly Pro Lys Ser Val Trp Tyr Arg Ile
Ala Phe Trp Leu Gln Trp Phe Asn Ser Phe Val Asn Pro Leu Leu Tyr Pro Leu
Cys His Lys Arg Phe Gln Lys Ala Phe Leu Lys Ile Phe Cys Ile Lys Lys Gln
Pro Leu Pro Ser Gln His Ser Arg Ser Val Ser Ser

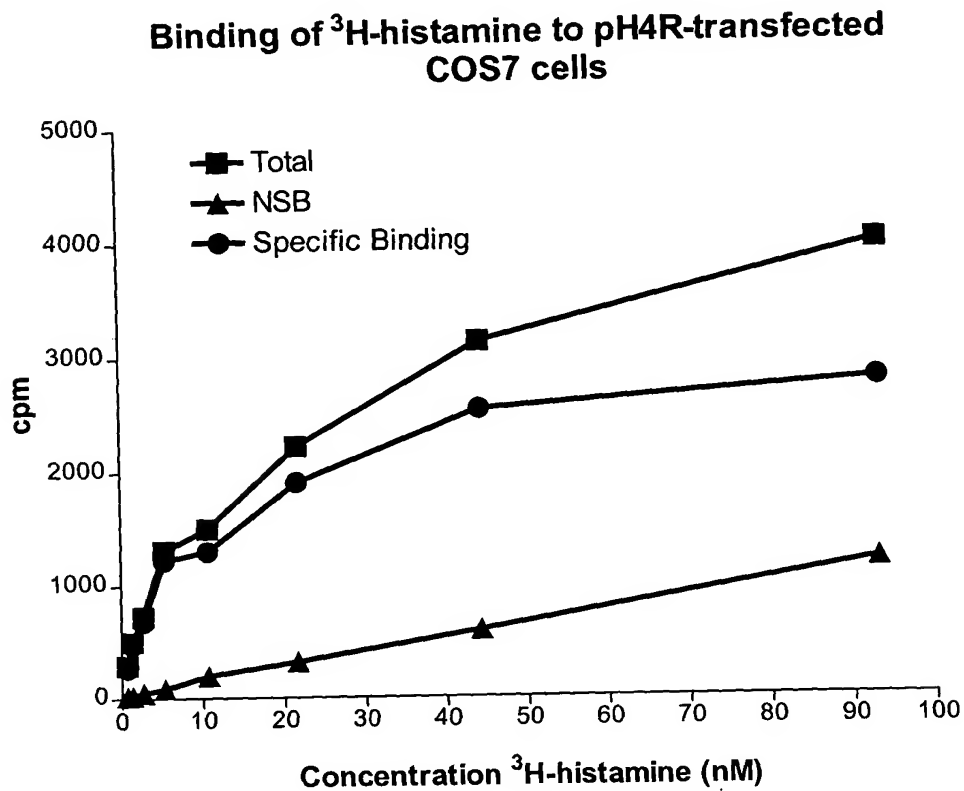
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Figure 3: Tissue Distribution of human histamine H4 receptor



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Figure 4: Binding of [³H]-histamine to pH4R expressing COS7 cells.



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FIGURE 5A

Mouse H4 DNA coding region (SEQ.ID.NO.:5)

ATGTCGGAGTCTAACAGTACTGGCATCTTGCCACCAGCTGCTCAGGTCCCCTTGGCATTTTTAATGT
CTTCATTTGCCTTTGCTATAATGGTAGGCAATGCTGTGGTCATCTTAGCCTTTGTGGTGGACAGAAA
CCTTAGACATCGAAGTAATTATTTTTTTCTTAATTTGGCTATTTCTGACTTCCTCGTGGGTTTGATT
TCCATTCCCTCTGTACATCCCTCACGTGTTGTTTAACTGGAATTTTGGAAGTGAATCTGCATGTTTT
GGCTCATTACTGACTATCTTTTGTGCACCGCATCTGTCTACAATATTGTCCTCATTAGCTACGATCG
ATACCAGTCAGTTTCAAATGCTGTGTCTTATAGGGCTCAACACACTGGCATCATGAAGATTGTTGCT
CAAATGGTGGCTGTTTGGATACTGGCTTTCTTGGTAAATGGCCCGATGATTCTGGCTTCAGATTCTT
GGAAGAACAGCACGAACACAAAGGACTGTGAGCCTGGCTTTGTTACAGAGTGGTACATCCTCACCAT
TACAATGCTCTTGGAATTCCTGCTTCCTGTCATCTCTGTGGCTTATTTCAATGTACAGATTTACTGG
AGCCTGTGGAAGCGTAGGGCTCTCAGTAGGTGCCCTAGCCATGCTGGATTCTCCACTACCTCTTCCA
GTGCTTCAGGACACTTACACAGAGCTGGGGTGGCTTGCAAGACAAGTAATCCTGGATTGAAGGAATC
AGCTGCATCTCGTCACTCAGAAAGTCCTCGAAGAAAGAGCAGCATCCTGGTGTCTTAAGGACTCAC
ATGAACAGCAGTATCACTGCCTTCAAAGTGGGTTTCCTTCTGGCGATCGGAAAGTGCAGCGCTTCGCC
AAAGGGAGTACGCAGAGCTTCTCAGAGGCAGGAAGCTAGCCAGGTCACTGGCCATCCTTCTGAGCGC
TTTTGCCATTTGCTGGGCTCCATACTGTCTGTTACAATGTCTTTCAACTTACCCAGAACGGAA
CGCCCCAAATCGGTGTGGTACAGCATTGCCTTCTGGCTGCAATGGTTCAATTCGTTTGTTAATCCCT
TTCTGTACCCTTTGTGTACAGGCGTTTCCAGAAGGCTTCTGGAAGATACTTTGTGTGACAAAGCA
ACCAGCGCTGTACAGAACAGTCAGTATCTTCTTGA

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FIGURE 5B

Rat H4 DNA coding region (SEQ.ID.NO.:6)

ATGTCGGAGTCTAACGGCACTGACGTCTTGCCACTGACTGCTCAAGTCCCCCTTGGCATTTTTAATGT
CCCTGCTTGCTTTTGCTATAACGATAGGCAATGCTGTGGTCATTTTAGCCTTTGTAGCAGACAGAAA
CCTTAGACATCGAAGTAATTATTTTTTTCTTAATTTGGCTATTTCTGACTTCTTCGTGGGTGTCATC
TCCATTCCCTCTGTACATCCCTCACACGCTGTTTAACTGGAATTTGGAAGTGAATCTGCATGTTTT
GGCTCATTACTGACTATCTTTTGTGCACAGCATCCGTCTACAGTATTGTCCCTCATTTAGCTACGATCG
ATACCAGTCAGTTTCAAACGCTGTGCGTTATAGAGCACAGCACACTGGCATCCTGAAAATTGTTGCT
CAAATGGTGGCTGTTTGGATACTGGCTTTCTTGGTCAATGGCCCAATGATTCTGGCTTCGGATTCTT
GGAAGAACAGCACCAACACAGAGGAGTGCGAGCCTGGCTTTGTTACTGAGTGGTACATCCTCGCCAT
TACAGCATTCTTGGAATTCTGTCTCCCTGTCTCCTTGGTGGTCTATTTCAAGTGTACAGATTTACTGG
AGCCTGTGGAAGCGTGGGAGTCTCAGTAGGTGCCCTAGCCACGCTGGATTTCATCGCTACCTCTTCCA
GGGGCACTGGACACTCACGCAGAACTGGGTGGCTTGTAGGACAAGTCTTCCTGGATTAAAGGAACC
AGCCGCATCCCTTCATTTCAGAAAGTCCACGAGGAAAGAGCAGTCTCCTGGTGTCTTAAAGGACTCAC
ATGAGCGGTAGTATCATCGCCTTCAAAGTGGGTTCCTTCTGCCGATCAGAAAGCCCAGTGCTTCACC
AGAGAGAGCACGTGGAGCTTCTCAGAGGCAGGAAGCTAGCCAGGTCGCTAGCTGTCTCCTGAGTGC
TTTTGCCATTTGCTGGGCTCCGTATTGCCTGTTACAATTGTTCTTTCAACTTATCGCAGAGGGGAG
CGCCCCAAATCGATTTGGTACAGCATAGCCTTTTGGCTACAGTGGTTCAATTCATTATTAATCCCT
TTCTATACCCTTTGTGCCACAGACGTTTCCAGAAGGCTTTCTGGAAGATACTCTGTGTGACAAAGCA
ACCAGCACCTTCACAGACCCAGTCAGTATCTTCTTGA

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FIGURE 5C

Guinea Pig H4 DNA coding sequence (SEQ.ID.NO.:7)

ATGTTGGCAAATAACAGTACAATCGCCTTAACATCAATTAAAAATTTCTTTGACATTTTTTA
ATGTCCTTTACTAGCTATTGCTATAATGTTAGGCAATGTCGTGGTCATTTTAGCTTTTATTG
TGGACAGAAATCTTAGACATCGAAGTAATTACTTTTTTCTTAACCTGGCCATTGCAGACT
TCTTTGTGGGTGCAATTGCAATTCCTCTGTACATACCTTCCTCGCTGACTTACTGGACTT
CTGGAAAGCAAGCTTGTGATTTTGGCTCATTAAGTACTGACTATCTTTTATGACAGCATCTGT
GTATAATATTGTCCTCATCAGCTACGATCGCTACCAGTCAGTCTCAAATGCCGTGTGGTA
TAGAGCTCAGCACTCTGGCACCTGGAAAATTGCTACTCAGATGGTGGCTGTTTGGATAT
TCTCCTTCATGACAAATGGGCCGATGATTCTGATTTTCTGAGTCTTGGCAGAAATAGCACT
ACAGAATGTGAACCTGGATTTTTAAAAAAGTGGTACTTTGCTCTCCCTACATCATTATTG
GAATTCCTGATCCCCATCTTGTTAGTTGCTTATTTTCTGAGCGCCCATATTTACTGGAGCCTG
TGGAAGCGAGAGAACTGAGCAGGTGCCTCAGCCACCCTGTAAGTCCCTCTGACTCTTC
CAGCAGTGACCACGGAACACTCCTGCAGACAGGACCCCGATTCAAGGGCGACTCTGCCA
GCACGGAAAGAAACAACCTGCCTCTCTTGGTTTCAGACAAGTCACGGAGAAAGAGCAGTC
TCTTGTTTTCCATAAGAGCCTACAAGAACAGCAATGTGATCGCTTCCAAAATGGGCTTC
CTCTCCCACTCAGATTCCCTGGCTCTTCAGCAAAGGGAACATATCGAACTTTTCAGAGC
CAGGAAATTAGCCAAGTCACTGGCCATACTCTTAGCAGCTTTTGCCATTTGCTGGGCTCC
ATATTCACTGACTACAGTTATCTACTCATTTTTTCTGAAAGGAACTTGAATAAATCAAC
CTGGTACCATACTGCCTTTTGGCTCCAGTGGTTCAATTCCTTTGTTAATCCCTTTTGTAT
CCATTGTGTCACAAACGTTTTTCTGAAAGGCTTTCCTGAAAATACTTCCTGTGAGAAGGCA
ATCCACGCCACCACACAACCGCTCAATATCCACTTGA

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FIGURE 6A

Mouse histamine H4 receptor protein sequence (SEQ.IN.NO.:8)

MSESNSTGILPPAAQVPLAFLMSSFAFAIMVGNAVVLAFVVDRLNRHRSNYFFLNLAISDFL
VGLISIPLYIPHVLFNWNFGSGICMFWLITDYLLCTASVYNIVLISYDRYQSVSNAVSYRAQH
TGIMKIVAQMVA VWILAFLVNGPMILASDSWKNSTNTKDCEPGFVTEWYILTITMLLEFLLP
VISVAYFNVQIYWSLWKRRALSRCPSHAGFSTTSSSASGHLHRAGVACRTSNPGLKESAASR
HSESPRRKSSILVSLRTHMNSSITAFKVGSFWRSESAALRQREYAELLRGRKLARSLAILLSA
FAICWAPYCLFTIVLSTYPRTERPKSVWYSIAFWLQWFNSFVNPFLYPLCHRRFQKAFWKIL
CVTKQPALSQNQSVSS

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FIGURE 6B

Rat histamine H4 receptor protein sequence (SEQ.ID.NO.:9)

MSESNGTDVLPLTAQVPLAFLMSLLAFAITIGNAVVILAFVADRNLRHRSNYFFLNLAISDF
VGVISIPLYIPHTLFNWNFGSGICMFWLITDYLLCTASVYSIVLISYDRYQSVSNAVRYRAQH
TGILKIVAQMVA VWILAFLVNGPMLASDSWKNSTNTEECEPGFVTEWYILAITAFLEFLLPV
SLVVYFSVQIYWSLWKRGSLSRCP SHAGFIATSSRGTGHSRRTGLACRTSLPGLKEPAASLH
SES PRGKSSLLVSLRTHMSGSIHAFKVGSFCRSESPVLHQREHVELLRGRKLARSLAVLLSAF
AICWAPYCLFTIVLSTYRRGERPKSIWYSIAFWLQWFNSLINPFLYPLCHRRFQKAFWKILCV
TKQPAPSQTQSVSS

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FIGURE 6C

Guinea Pig histamine H4 receptor protein sequence (389 amino acids)
(SEQ.ID.NO.:10)

MLANNSTIALTSIKISLTFLMSLLAIAIMLGNVVVILAFIVDRNLRHRSNYFFLNLAADFFVG
AIAIPLYIPSSLTYWTSQKQACVFWLITDYLLCTASVYNIVLISYDRYQSVSNVWYRAQHS
GTWKIATQMVAVWIFSMTNGPMLISDSWQNSTTECEPGFLKKWYFALPTSLLLEFLIPILLV
AYFSAHIYWSLWKREKLSRCLSHPVLPSSSSSDHGHSCRQDPDSRATLPARKETTASLGSD
KSRRKSSLLFSIRAYKNSNVIASKMGFLSHSDSLALQQREHIELFRARKLAKSLAILLAFAIC
WAPYSLTTVIYSFFPERNLTKSTWYHTAFWLQWFNSFVNPFLYPLCHKRFQKAFLKILPVRR
QSTPPHNRSIST

Figure 7A
Nucleotide Sequence Comparison of Human (SEQ ID NO:1), Guinea Pig (SEQ ID NO:7), Mouse (SEQ ID NO:5), and Rat H4 (SEQ ID NO:6)

Human: ATGCCAGATACATAATAGCACAAATCAATTTATACATAAGCACTCGTGTACTTTTAGCATTTTATGTCCTTAGTAGCTTTTGCTATATGCTAGGAATGCTTTGGTCATTTTAGCTTTT 120
Guinea Pig: ATGTGGCAATAACAGTACAAATCGCCTTAACA---TCAATTAATAATTTCTTTGACATTTTAAATGCTTTTAGCTATATGCTATATGTTAGGCAATGCTGCTAGCTTTT 117
Mouse: ATGTGGGAGTCTAAACAGTACTGGCACTCTGGCCACAGCTGCTCAGCTCCCTTGGCATTTTAAATGCTTTTAAATGCTTTAGCTTTGCTATATGCTAGGCAATGCTGCTAGCTTTT 120
Rat: ATGTCCGAGTCTAAACGGCAGCTGACGCTGTGGCCACTGACTGCTCAAGTCCCTTGGCATTTTAAATGCTTTTAAATGCTTTTAAATGCTTTTAAATGCTTTTAAATGCTTTT 120
Human: GTGTGGACAAAAAACCCTTAGACATCGAAGTAGTTATTTTCTTAACCTTGGCCATCTCTGACTTCTTCTGGGTGTAICTCCATTTCTCTTTGTACATCCCTCACACGCTGTTCGAAATG 240
Guinea Pig: ATTTGGGACAGAAATCTTAGACATCGAAGTAATTAATTTTCTTAACCTTGGCCATTTGACAGCTTCTTGGGTGCAATTTGCAATTCCTGTACATACCTTCTCGCTACTTACTGG 237
Mouse: GTGTGGGACAGAAACCTTAGACATCGAAGTAATTAATTTTCTTAACCTTGGCCATTTGCTGACTTCTCTGCTGGGTGTAATTTCCATTTCTCTGTACATCCCTCACAGTGTGTAACTGG 240
Rat: GTAGCAGACAGAAACCTTAGACATCGAAGTAATTAATTTTCTTAACCTTGGCCATTTCTGACTTCTTCTGGGTGTAICTCCATTTCTCTGTACATCCCTCACACGCTGTGTAACTGG 240
Human: GATTTTGGAAAGGAAATCTGTGTATTTTGGCTCACTACTGACTATCTGTATTGTGTACAGCATCTGTATATAACAATGTCCTCATCAGCTATGATCGATACCTGTCAATGCTGTG 360
Guinea Pig: ACTTCTGGAAAGCAAGCTTGTGTATTTTGGCTCACTACTGACTATCTTTTATGTAACAGCATCTGTGTATATAATTTGTCCTCATCAGCTACGATCGCTACCAGTCAGTCTCAAAATGCCGTG 357
Mouse: AATTTTGGAGTGGAAATCTGCATGTTTGGCTCACTACTGACTATCTTTTGTGACCCGATCTGTCTACAAATATGTCCTCATTAGCTACGATCGATACCACTAGTCAGTTTCAAAATGCTGTG 360
Rat: AATTTTGGAGTGGAAATCTGCATGTTTGGCTCACTACTGACTATCTTTTGTGACAGCATCCGCTACAGATATGTCCTCATTAGTACGATACCACTAGTCAGTTTCAAAACGCTGTG 360
Human: TCTTATAGAACTCAACATACATCTGGGTCTTGAAGATGTTTACTCTGATGTGGCGCTTTGGGTGCTGGCCCTTCTTAGTGAATGGGCCCAATGATCTTAGTTTCAGAGCTCTTTGGAGAGGATGAA 480
Guinea Pig: TGGTATAGAGCTCAGCATCTGGGCACCTGGGAAATTTGCTCAAGATGGTGGCTGTGTGGATATTCCTTTCATGCAAAATGGGCCCAATGATCTTAGTTTCAGAGCTCTTTGGCAGCAATAGC 477
Mouse: TCTTATAGGCTCAACACACTGGCATCATGAAGATTTGTCCTCAAAATGGTGGCTGTGTGGATATGCTTCTTGGTAAATGGGCCCAATGATCTTAGTTTCAGAGCTCTTTGGAGAACACAGC 480
Rat: CGTTATAGAGCAGACACACTGGCATCTCTGAAATTTGTCCTCAAAATGGTGGCTGTGTGGATATGCTTCTTGGTCAATGGGCCCAATGATCTTAGTTTCAGAGCTCTTTGGAGAACACAGC 480
Human: GGT---AGT---GAATGTGAACCTGGATTTTTCGGGAATGGTACATCCTTGGCATCACATCATTTCTTGGAAATTCGTGATCCAGTCCAGTCTTAGTCCGCTTATTTTCAACATGAATATTTAT 594
Guinea Pig: ACT---ACA---GAATGTGAACCTGGATTTTAAAGTGGTACTTTTGTCTCTCCCTACATCATATATGGAAATTCCTGATCCCAATCTTGTAGTTGCTTATTTTTCAGCGCCCATATTTTAC 591
Mouse: ACGAACACAAAGGACTGTGAGCCTGGCTTGTGTACAGAGTGGTACATCCTCACCAATTAACAATGCTCTTGGAAATTCCTGCTTCTGCTCATCTCTGTGGCTTATTTTCAATGTACAGATTTTAC 600
Rat: ACCAACACAGAGGAGTGGAGCCTGGCTTTGTTACTGAGTGGTACATCCTCGCCATACAGCATCTTGGAAATTCCTGCTCCCTGTCTCTTGGTGGTGTCTATTTTCAGTGTACAGATTTTAC 600
Human: TGGAGCCTGTGGAGCGTGTATCATCTCAGTAGGTGCCAAAGCCATCCTGGAAGT---ACTGCTGTCTCTTCCAACTCTGGGACACTCAATTCAGAGGTAGACTATCTTCAAGGAGATCT 711
Guinea Pig: TGGAGCCTGTGGAGCGAGAGAACTCAGTAGGTGCTCAGCACCGCTGTACTCCCTCTGACTCTTCAGAGTGAACAGGACACTCTCTGACAGACAGGACCCCGATTTCAAGGGGACT 711
Mouse: TGGAGCCTGTGGAGCGTAGGGCTCTCAGTAGGTGCGCTCAGCCATGCTGATTC---TCCACTACCTCTTCCAGTGTCTCAGGACACTTACAGAGCTGGGTGGCTTGGCAGGACAACT 717
Rat: TGGAGCCTGTGGAGCGTGGAGTCTCAGTAGGTGCGCTCAGCCACGCTGGATTC---ATCGCTACCTCTTCCAGGGGCACTGGGACACTCAGCGAGAACTGGGTGGCTTGTAGGACAACT 717
Human: CTTTCTGCATCGACAGAAAGTTTCTGCATCTTTCATTACAGAGACAGAGGAGAAAGTAGTCTCATGTTTCTTCCCAAGAACCAAGATGAATAGCAATACAATTTGCTTTCCAAAATGGGT 831
Guinea Pig: CTGCCAGCAGGAAAGAAACAACTGCTCTCTTGGTTCAGACAGTCAAGGAGAAAGAGAGTCTCTTGTTTCCATAAGAGCTTACAGAAACAGCAATGTGATCGCTTCCAAAATGGGC 831
Mouse: AATCCTGGATTGAAGGAATCAGCTGCATCTGCTCACTCAGAAAGTCTCTGAGAGAAAGAGCAGCATCTCTGTGTCTCTTAAGAGACTCTCAATGAACAGCAGTATCATCTGCTTCCAAAGTGGGT 837
Rat: CTTTCTGGATTAAAGGAACCCAGCCGATCCCTTCATTACAGAAAGTCCAGAGGAAAGAGCAGTCTCTCTGTGTCTCTTAAGGACTCATCATGAGCGGTAGTATCATCGCTTCAAGTGGGT 837
Human: TCCTTCTCCCAATCAGATTTCTGTAGCTTTCACCAAAAGGGAAACATGTTGAACCTTTAGAGCAGGAGATTAGCAAGTCACTGGCCATCTCTTTAGGGGTTTTTGTCTTTGTCTGGGCT 951
Guinea Pig: TTCCTCTCCCACTCAGATTTCCCTGGCTTTCAGCAAAAGGGAAACATATCGAATTTTCAGAGCCAGGAATTAGCCAGTCACTGGCCATCATCTTTCAGAGCTTTTGTGCCATTTGTCTGGGCT 951
Mouse: TCCTTCTGGCGATCGGAAAGTGCAGCGCTTCGCCAAAGGGAGTACGAGCTTCTCAGAGGAGGAATAGCAGTCTTCTGAGCCATCTTCTGAGCGCTTTTGTGCCATTTGTCTGGGCT 957
Rat: TCCTTCTGCCGATCAGAAAGCCCGAGTGTCTTCCAGAGAGAGCAGCTGGAGCTTCTCAGAGGAGGAGAGTAGCCAGGTAGCTGTCTCTCTGAGTGTCTTTTGTGCCATTTGTCTGGGCT 957

Figure 7B

Species	Accession	Sequence	Position
Human	CCATATTCCTGTCTCACAATATGCTCTTCAATTTATTTCTCAGCAACAGGTCCTAAATCAGTTTGGTATAGAAATGCAATTTTGGCTTCAGTGGTTCAATTCCTTTGTCAATGCTCTTTGTG	1071	
Guinea Pig	CCATATTCAGTCACTGACAGTATCTACTCATTTTCTGAAAGAAATGACTTAATCAACCTGGTACCACTATGCTCTTGGCTCCAGTGGTTCAATTCCTTTGTAAATCCCTCTTTG	1071	
Mouse	CCATATCTGTGTTCCACAATTTGTCCTTTCAACTTACCCAGAAAGGAAACGCCCAATCCGGTGTGGTACAGCATTCGCTTCTGGCTGCAATTCGTTTGGTAAATCCCTCTTTG	1077	
Rat	CCGTAATTCGCCCTTCCACAATATGTTCTTTCACTTATCCAGAGGGAGCGCCCCCAATGATGTGGTACAGCATAGAGCTTTTGGCTTCAGTGGTTCAATTCACCTATTAAATCCCTCTTTCA	1077	
Human	TATCCATTGTGTCAACAGCGCTTTCAAAGGCTTTCTTCAAAATAATTTTGTATATAAAAGCAACCTCTACATCACAACAACAGTCGGTTCAGTATCTTCTTTAA	1173	
Guinea Pig	TATCCATTGTGTCAACAAGGTTTTCAGAAGGCTTTCTCGTGAAGGCTTCTCGTGAAGGCAATCCAGGCCA --- CACAACCGCTCAATATCCACTTGA	1170	
Mouse	TACCCTTTGTGTCCAGCGGTTTTCAGAAAGCTTTCTTGGAAAGATCTTGTGTGCAAAAGCAACCCAGCGGTGCA --- CAGAACCAGTTCAGTATCTTCTTTGA	1176	
Rat	TACCCTTTGTGTCCACAAGGCTTTTCAGAAAGCTTTCTTGGAAAGATCTTGTGTGCAAAAGCAACCCAGCATCTTCA --- CAGACCCCACTTCAGTATCTTCTTTGA	1176	

Figure 8 Amino Acid sequence Comparison of Human (SEQ ID NO:2), Guinea Pig (SEQ ID NO:10), Mouse (SEQ ID NO:8) and Rat H4 (SEQ ID NO:9)

Human:	MPDTNSTINLSLSTRVTLAFAFMSLVAFAIMLGNALVILAFVVDKRLRHRSSYFFLNLAISDFEVGVISIPLYIPHTLFEWDFGKEICVFWLITDYLLCTA	100
Guinea Pig:	MLANNSTIALT-SIKISLTFELMSLLATAIMLGNVVVILAFIVDRNLRHRSNFFLNLAIADEFVGAIAIPLYIPSSLTWTSGKQACVFWLITDYLLCTA	99
Mouse:	MSESNTGILPPAAQVPLAFLMSSEFAIMVGNVAVILAFVVDRLRHRSNFFLNLAISDFLVGLISIPLYIPHLFNNWFGSGICMFWLITDYLLCTA	100
Rat:	MSESNTGTDVPLTAQVPLAFLMSLLAFATIGNAVVILAFVADRNLRHRSNFFLNLAISDFEVGVISIPLYIPHTLFWNFGSGICMFWLITDYLLCTA	100
Consensus:	M..N.T.L.:...:L:F:MSL:A:AIM:GN.:VILAF.:D:NLRHR:YFFLNLA:DF.VG.I:IPLYIP.:L.W.G.:C:FWL.TDYLLCTA	
	TM1	
Human:	SVYNIVLISVDRLYSVNAVSYRTQHTGVLKIVTLMVAVWLAFVLNGPMLVSESWKDEG-S-ECEPGFFSEWYILAITSFLEFVIPVLVAYFNMNIY	198
Guinea Pig:	SVYNIVLISVDRLYSVNAVSYRAQHTGIMKIQAQVAVWILAFVLNGPMLASDWNKSTNTKDCPEGFVTEWYILITITMLLEFLLPVLSVAYFNVQIY	197
Mouse:	SVYNIVLISVDRLYSVNAVSYRAQHTGIMKIQAQVAVWILAFVLNGPMLASDWNKSTNTKDCPEGFVTEWYILITITMLLEFLLPVLSVAYFNVQIY	200
Rat:	SVYSIVLISVDRLYSVNAVSYRAQHTGILKIVAQMVAWILAFVLNGPMLASDWNKSTNTKDCPEGFVTEWYILITITMLLEFLLPVLSVAYFNVQIY	200
Consensus:	SVYNIVLISVDRLYSVNAV YR:QH:G.KI..MVAVW:..F:NGPMIL:S:SW:...:CEPGF...WY:...:T:LEF::P::VAYF:::IY	
	TM2	
Human:	WSLWKRDHLSRCQHPGL-TAVSSNICGHSFRGLSSRRSLASSTEVPAFHSERQRRKSSILMFSSRTKMNSNTIASKMGFSQSDSVALHQREHVELLR	297
Guinea Pig:	WSLWKREKLSRCLSHPVLPDSSSDSDHCHSCRODPDSRATLPARKETASLGSDKSRKSSLLFSIRAYKNSNVIAASKMGFLSHSDSLAQOREHIELFR	297
Mouse:	WSLWKRRALSRCPSHAGF-STTSSASGHLHRAGVACRTSNPGLKESAAASHSESPPRRKSSILVSLRTHMNSSITAFKVGFSWRSESAALRQREYAEALLR	299
Rat:	WSLWKRGSLSRCPSHAGF-IATSSRGTHSRRTGLACRTSLPGLKEPAASLHSESPPRGKSSLLVSLRTHMSSIIAFKVGFSRSESPVLHQIEHVELLR	299
Consensus:	WSLWKR:LSRC SH.:..SS.GH.R.:R:R:..E..AS:S::R.KSSL::S R:.....A.K:G::S:S::L:Q E::EL:R	
	TM3	
Human:	ARRLAKSLAILLGVEAVCWAPYSLFTIVLSFYSSATGPKSVWYRIAFAWLQWNFSEVNPFLLYPLCHKRFRQKAFKIFCIKKQPLPSQHSRSVSS	390
Guinea Pig:	ARKLAKSLAILLAFAICWAPYSLFTIVLSFYSSATGPKSVWYRIAFAWLQWNFSEVNPFLYPLCHKRFRQKAFKILIPVRRQSTPP-HNRSIST	389
Mouse:	GRKLARSAILLSAFAICWAPYCLFTIVLSTYPRTERPKSVWYIAFWLQWNFSEVNPFLYPLCHRRFRQKAFWKILCVTKQPALSQ-NQSVSS	391
Rat:	GRKLARSAILLSAFAICWAPYCLFTIVLSTYRRGERPKSIWYIAFWLQWNFSEVNPFLYPLCHRRFRQKAFWKILCVTKQAPPSQ-TQSVSS	391
Consensus:	.R:LA:SLA:IL:..FA:CWAPY:L T::S :.. .KS.WY:..AFWLQWENS::NP:LYPLCH:RFQKAF.KI: : :Q: : : :RS:S:	
	TM4	
Human:	WSLWKREKLSRCLSHPVLPDSSSDSDHCHSCRODPDSRATLPARKETASLGSDKSRKSSLLFSIRAYKNSNVIAASKMGFLSHSDSLAQOREHIELFR	297
Guinea Pig:	WSLWKRRALSRCPSHAGF-STTSSASGHLHRAGVACRTSNPGLKESAAASHSESPPRRKSSILVSLRTHMNSSITAFKVGFSWRSESAALRQREYAEALLR	299
Mouse:	WSLWKRGSLSRCPSHAGF-IATSSRGTHSRRTGLACRTSLPGLKEPAASLHSESPPRGKSSLLVSLRTHMSSIIAFKVGFSRSESPVLHQIEHVELLR	299
Consensus:	WSLWKR:LSRC SH.:..SS.GH.R.:R:R:..E..AS:S::R.KSSL::S R:.....A.K:G::S:S::L:Q E::EL:R	
	TM5	
Human:	ARRLAKSLAILLGVEAVCWAPYSLFTIVLSFYSSATGPKSVWYRIAFAWLQWNFSEVNPFLLYPLCHKRFRQKAFKIFCIKKQPLPSQHSRSVSS	390
Guinea Pig:	ARKLAKSLAILLAFAICWAPYSLFTIVLSFYSSATGPKSVWYRIAFAWLQWNFSEVNPFLYPLCHKRFRQKAFKILIPVRRQSTPP-HNRSIST	389
Mouse:	GRKLARSAILLSAFAICWAPYCLFTIVLSTYPRTERPKSVWYIAFWLQWNFSEVNPFLYPLCHRRFRQKAFWKILCVTKQPALSQ-NQSVSS	391
Rat:	GRKLARSAILLSAFAICWAPYCLFTIVLSTYRRGERPKSIWYIAFWLQWNFSEVNPFLYPLCHRRFRQKAFWKILCVTKQAPPSQ-TQSVSS	391
Consensus:	.R:LA:SLA:IL:..FA:CWAPY:L T::S :.. .KS.WY:..AFWLQWENS::NP:LYPLCH:RFQKAF.KI: : :Q: : : :RS:S:	
	TM6	
Human:	ARRLAKSLAILLGVEAVCWAPYSLFTIVLSFYSSATGPKSVWYRIAFAWLQWNFSEVNPFLLYPLCHKRFRQKAFKIFCIKKQPLPSQHSRSVSS	390
Guinea Pig:	ARKLAKSLAILLAFAICWAPYSLFTIVLSFYSSATGPKSVWYRIAFAWLQWNFSEVNPFLYPLCHKRFRQKAFKILIPVRRQSTPP-HNRSIST	389
Mouse:	GRKLARSAILLSAFAICWAPYCLFTIVLSTYPRTERPKSVWYIAFWLQWNFSEVNPFLYPLCHRRFRQKAFWKILCVTKQPALSQ-NQSVSS	391
Rat:	GRKLARSAILLSAFAICWAPYCLFTIVLSTYRRGERPKSIWYIAFWLQWNFSEVNPFLYPLCHRRFRQKAFWKILCVTKQAPPSQ-TQSVSS	391
Consensus:	.R:LA:SLA:IL:..FA:CWAPY:L T::S :.. .KS.WY:..AFWLQWENS::NP:LYPLCH:RFQKAF.KI: : :Q: : : :RS:S:	
	TM7	